

ABSTRACT

According to the invention, the wavelength of a laser pulse is once converted to another wavelength by using a nonlinear optical action. A ratio of the intensity at a temporal peak of a pulse to that at a front part thereof is increased. The converted laser light is reconverted by using a nonlinear optical action in such a way as to have an initial wavelength again. Thus, simultaneously with extremely enhancing the contrast at the front part of the pulse, the amplification thereof by a used laser amplifier is enabled. Saturation amplification is then performed on the pulse to thereby form ultrashort pulses. When the generation of ultrashort excimer laser pulses is performed, the generation thereof can be performed without using a costly mode-locked laser.